

Toxins review Appendix D BDCP:

October 20, 2011

Yale- selenium and methylmercury, plus a few general comments

General comments:

1. Back to the integrating conceptual model: It's unfortunate that we can't rely on the BDCP consultants for the conceptual model we need—one that integrates 'bio-geo-chem' changes with respect to place and time. (It's hard to capture the idea.) Ultimately an impact analysis will need to be specific as to the intersection of hydrology and water chemistry with habitat and species. This is, of course, a programmatic look, but it needs to put the right variables in place.

Although the 'preliminary proposal' manipulates key elements of this model (e.g. habitat and conveyance/operations that affect channel configuration, flows routing and control, etc.), the 'drivers' actually considered are few. See, e.g., p. D-14, lines 6-12, stating that dilution (and mixing) are the main effects of operational changes. This is disappointing after the more comprehensive contaminant fate and transport text on page D-12. Dilution is certainly not descriptive of the ways in which flow changes affect selenium and mercury: One would want to consider impacts on sediment /particulate transport, the environments where the sediments/particulates end up (such as water residence time, wetting regime, and foodweb propensity for bioaccumulation and biomagnifications). Could DRERIP models be used to characterize how the proposal could affect key drivers, and by extension produce effects?

2. Page D-8, re general approach: What is the time frame for analysis? Obviously, there's a 'future' over which the proposal would take shape, which is...? In looking at contaminants it would be useful to consider (apart from BDCP) the expected future magnitude of the problem. Is there a program with promise to reduce the pollution? Will expected changes such as urban expansion exacerbate it? The text should provide a clearer characterization of the relative importance of inputs originating within versus from the greater watershed. What proportion of contaminants come from sources outside the B-D proper? Are they being controlled?

3. Regarding upstream conditions: The repeated reference to 'land use' as the driver of toxic inputs (in another document 'land use' was the source of hydrologic modification) is on the face of it innocuous. However, it could be interpreted in a way that obscures controllable factors. *It may well be that the concept derives from the 'level of development' that is used in modeling to depict upstream depletions.* In any case, while it's true that in a general sense 'land use' produces pollution – it's not the sole source, and, also, the land use-pollution relationship varies. We could recommend classifying pollutants as the water boards do: Some pollution stems from human activities and can to some extent be controlled; other sources are 'natural background.' We would focus on the former and recognize that even if beyond the responsibility of BDCP, they are controllable.

4. Page D-14, D4.2.2 discusses impacts on the Delta with changes in water inputs and circulation. This topic may warrant more attention. Typically the focus is on loss of the quantity and trans-delta flow of Sacramento River water that dilutes water entering from the San Joaquin. However, this text suggests that attention should also go to loss of dilution and mixing of in-delta contaminant discharges; this may require more analysis of sub-areas.

5. There is occasional reference to the EIS/EIR, but it's not clear how this analysis relates to the EIS/EIR.

The Appendix D scope is limited to effects on covered species-- in terms of adverse impacts. Thus, I'd presume that the information could be used to feed back to alternative (proposal) refinement . If at any point there are any trade-offs to decide across species or habitats , the covered species takes priority. How this will play out where there are regulatory requirements such as under the Delta methylmercury TMDL is unclear....

RE Mercury

6. BDCP and EIS/EIR analysis and requirements versus Water Board requirements. Because the Delta is impaired for methylmercury and because the BDCP agencies manage controllable factors that contribute to methylmercury production, they are subject to requirements under the recently adopted methylmercury TMDL. (Largely, this relates to monitoring and control studies in open water and flood plain environments.) The TMDL implementation plan provides specifics.

This situation means that the BDCP should incorporate the required actions, and the EIS/EIR should explain how this is being (or can be) carried out. Generally, the text of App D is not current with respect to the TMDL and should be revised for consistency with the regulatory approach (focus in-delta on methylmercury, tissue concentration targets, ...) and analysis (e.g., sources and exposure risks).

Page D-11 contains the observation that due to the complexity of processes producing methylmercury and lack of data, the effects in floodplains and other wetted habitats can't be quantified. This problem is exactly the point of the Delta methylmercury TMDL Phase 1 control studies in which the agencies are expected to participate. Also in CEQA analysis inability to predict or quantify impacts of BDCP actions does not mean ipso facto no responsibility for further action: What evades a CEQA 'significance' test is captured under the CWA.

6 There is a confusing survey of various thresholds for effects determination (D-15). We recommend that the document update the information citing adopted criteria for methylmercury in the Bay and Delta (regulatory actions by Regional Water Boards 2 and 5, respectively). These are fish tissue values that can be translated, if necessary, to water column values for total recoverable mercury. In Table D-3 the column "USEPA Recommended Criteria" should be deleted: These values are widely recognized as not protective and, for that reason, were never adopted.

D-17: The issue with change in flow may not be dilution so much as sediment transport and deposition, and hydrologic conditions at specific sites: Where does the mercury end up, and are conditions there conducive to methylation? There is need to cross-walk plans for new wetlands with analysis of conditions and locations for sediment settling.

7. Page 38: The summary species of concern has no birds or terrestrial animals. Using a 2008 version of DRERIP for mercury, there are clearly other species affected but perhaps none are covered.

